

U.S. Census Bureau
Fluid Power Products for Motion Control, Including Aerospace - 2008
MA333N(08)-1
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Address inquiries concerning these data to Investment Goods Industries Branch, U.S. Department of Commerce, Census Bureau, Manufacturing and Construction Division, Washington, DC 20233-6900, or call Melissa Scott, 301-763-4806.

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Table 1. Value of Shipments of Fluid Power Products for Motion Control, Including Aerospace: 2008 to 2004
[Value in thousands of dollars]

| Product class code | Product description | Year | | Value |
|-----------------------|---|------|------|---------|
| 3329125 | Nonaerospace type hydraulic directional control valves | 2008 | a/ | 533,387 |
| | | 2007 | | 551,913 |
| | | 2006 | | 602,885 |
| | | 2005 | | 496,295 |
| | | 2004 | | 426,799 |
| 3329127 | Nonaerospace type hydraulic valves (except directional control) | 2008 | a/ | 932,389 |
| | | 2007 | | 846,080 |
| | | 2006 | | 931,500 |
| | | 2005 | | 886,084 |
| | | 2004 | | 787,981 |
| 3329129 | Nonaerospace type pneumatic directional control valves | 2008 | c/ | 533,413 |
| | | 2007 | b/ | 532,967 |
| | | 2006 | | 603,169 |
| | | 2005 | | 561,514 |
| | | 2004 | | 528,925 |
| 332912B | Nonaerospace type pneumatic valves (except directional control) | 2008 | a/ | 155,774 |
| | | 2007 | a/r/ | 160,891 |
| | | 2006 | | 220,175 |
| | | 2005 | | 196,851 |
| | | 2004 | | 202,694 |
| 3329121 | Aerospace type hydraulic fluid power valves | 2008 | | (S) |
| | | 2007 | c/r/ | 453,061 |

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|---------|--|------|------|---------|
| | | 2006 | | 481,291 |
| | | 2005 | | 426,091 |
| | | 2004 | | 386,924 |
| 3329123 | Aerospace type pneumatic fluid power valves | 2008 | b/ | 665,934 |
| | | 2007 | a/r/ | 429,702 |
| | | 2006 | | 334,458 |
| | | 2005 | | 361,590 |
| | | 2004 | | 281,241 |
| 332912D | Parts for fluid power valves | 2008 | | (S) |
| | | 2007 | a/r/ | 255,127 |
| | | 2006 | | 193,590 |
| | | 2005 | | 204,255 |
| | | 2004 | | 203,173 |
| 332912H | Nonaerospace type flared (metal) fittings and couplings for, and assemblies of, tubing used in fluid power transfer systems | 2008 | a/ | 512,814 |
| | | 2007 | a/r/ | 514,776 |
| | | 2006 | | 490,776 |
| | | 2005 | | 414,790 |
| | | 2004 | | 381,098 |
| 332912J | Nonaerospace type flareless fittings and couplings, including nonmetal fittings, used in fluid power transfer systems | 2008 | | 552,708 |
| | | 2007 | | 549,383 |
| | | 2006 | | 561,373 |
| | | 2005 | | 493,404 |
| | | 2004 | | 437,894 |
| 332912L | Nonaerospace type hydraulic and pneumatic fittings and couplings for hose, and manifolds | 2008 | | 896,550 |
| | | 2007 | r/ | 826,954 |
| | | 2006 | | 844,968 |
| | | 2005 | | 834,786 |

| | | | | |
|---------|---|------|------|---------|
| | | 2004 | | 836,722 |
| 332912N | Nonaerospace type hydraulic and pneumatic assemblies of hose | 2008 | | 371,876 |
| | | 2007 | | 394,878 |
| | | 2006 | | 400,736 |
| | | 2005 | | 390,852 |
| | | 2004 | | 357,079 |
| 332912F | Aerospace type hydraulic and pneumatic hose or tube end fittings and assemblies and manifolds | 2008 | a/ | 852,223 |
| | | 2007 | a/r/ | 857,601 |
| | | 2006 | | 727,274 |
| | | 2005 | | 876,761 |
| | | 2004 | | 568,117 |
| 3339993 | Nonaerospace type filters for hydraulic fluid power systems | 2008 | c/ | 469,316 |
| | | 2007 | a/ | 441,584 |
| | | 2006 | | 390,422 |
| | | 2005 | | 334,952 |
| | | 2004 | | 308,308 |
| 3339994 | Nonaerospace type filters for pneumatic fluid power systems | 2008 | | (S) |
| | | 2007 | | 112,067 |
| | | 2006 | | 96,907 |
| | | 2005 | | 112,074 |
| | | 2004 | | 132,447 |
| 3339996 | Aerospace type hydraulic and pneumatic filters | 2008 | a/ | 118,009 |
| | | 2007 | | 99,956 |
| | | 2006 | | 111,838 |
| | | 2005 | | 98,314 |
| | | 2004 | | 104,884 |

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|-------------|---|------|----|-----------|
| 3339998 pt. | Compressed air and gas dryers, and lubricators | 2008 | | (S) |
| | | 2007 | b/ | 55,130 |
| | | 2006 | | 63,807 |
| | | 2005 | | 70,441 |
| | | 2004 | | 70,180 |
| 3339951 | Nonaerospace type hydraulic fluid power cylinders and actuators, linear and rotary | 2008 | c/ | 1,635,569 |
| | | 2007 | a/ | 1,522,284 |
| | | 2006 | | 1,537,297 |
| | | 2005 | | 1,346,918 |
| | | 2004 | | 1,146,084 |
| 3339953 | Nonaerospace type pneumatic fluid power cylinders and actuators, linear and rotary | 2008 | | 423,306 |
| | | 2007 | | 437,984 |
| | | 2006 | | 454,048 |
| | | 2005 | | 449,505 |
| | | 2004 | | 407,496 |
| 3339955 | Parts for nonaerospace type hydraulic and pneumatic fluid power cylinders, actuators, and related items | 2008 | | 700,366 |
| | | 2007 | | 584,867 |
| | | 2006 | | 562,771 |
| | | 2005 | | 495,123 |
| | | 2004 | | 451,574 |
| 3339957 | Aerospace type fluid power cylinders and actuators, hydraulic and pneumatic | 2008 | | 1,495,196 |
| | | 2007 | | 1,427,862 |
| | | 2006 | | 1,366,067 |
| | | 2005 | | 1,246,400 |
| | | 2004 | | 1,131,820 |
| 3339961 | Nonaerospace type reciprocating pumps | 2008 | a/ | 946,485 |
| | | 2007 | a/ | 899,968 |

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|---------|--|------|------|---------|
| | | 2006 | | 804,142 |
| | | 2005 | | 853,220 |
| | | 2004 | | 768,540 |
| 3339963 | Nonaerospace type rotary and other fluid power pumps | 2008 | a/ | 594,435 |
| | | 2007 | b/r/ | 544,660 |
| | | 2006 | | 698,929 |
| | | 2005 | | 642,871 |
| | | 2004 | | 537,937 |
| 3339965 | Nonaerospace type fluid power motors | 2008 | | 698,047 |
| | | 2007 | r/ | 677,708 |
| | | 2006 | | 566,193 |
| | | 2005 | | 634,195 |
| | | 2004 | | 592,126 |
| 3339967 | Aerospace type fluid power pumps and motors | 2008 | | (S) |
| | | 2007 | c/r/ | 384,510 |
| | | 2006 | | 329,487 |
| | | 2005 | | 276,251 |
| | | 2004 | | 261,682 |
| 3339969 | Parts for fluid power pumps, motors, and hydrostatic transmissions | 2008 | c/ | 270,789 |
| | | 2007 | c/r/ | 288,341 |
| | | 2006 | | 331,751 |
| | | 2005 | | 290,852 |
| | | 2004 | | 284,338 |

Table 2. Manufacturers' Shipments of Fluid Power Products for Motion Control by Type, Including Aerospace: 2008 and 2007
[Quantity in units. Value in thousands of dollars]

| Product code | Product description | Year | No. of cos. | Quantity | | Value | |
|--------------|--|------|-------------|----------|------------|-------|---------|
| 3329125 | Nonaerospace type hydraulic directional control valves | 2008 | (X) | a/ | 10,799,539 | a/ | 533,387 |
| | | 2007 | | a/ | 10,748,233 | | 551,913 |
| 3329125110 | Manual: 3- and 4-way monoblock | 2008 | 19 | | (D) | | (D) |
| | | 2007 | | | (D) | | (D) |
| 3329125120 | Manual: 3- and 4-way sectional | 2008 | 13 | | 931,655 | | 116,019 |
| | | 2007 | | | 1,082,226 | | 131,243 |
| 3329125130 | Other manual | 2008 | 10 | | (D) | | (D) |
| | | 2007 | | | (D) | | (D) |
| 3329125140 | Solenoid: 2-way types | 2008 | 11 | | (D) | | (D) |
| | | 2007 | | | (D) | | (D) |
| 3329125150 | Solenoid: 3- and 4-way types | 2008 | 20 | a/ | 3,430,527 | a/ | 168,648 |
| | | 2007 | | | 3,275,821 | | 174,310 |
| 3329125160 | Other directional control | 2008 | 24 | | (S) | c/ | 73,310 |
| | | 2007 | | | (S) | b/ | 72,496 |
| 3329127 | Nonaerospace type hydraulic valves (except directional control) | 2008 | (X) | a/ | 20,513,733 | a/ | 932,389 |
| | | 2007 | | a/ | 20,759,523 | | 846,080 |
| 3329127110 | Pressure control: Relief valves | 2008 | 23 | b/ | 554,112 | c/ | 45,819 |
| | | 2007 | | a/ | 555,588 | r/ | 44,048 |
| 3329127120 | Pressure control: Other, including load sensing and manual types | 2008 | 13 | a/ | 427,111 | c/ | 43,410 |

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|------------|--|------|-----|------|------------|----|---------|
| | | 2007 | | | 392,741 | | 40,331 |
| 3329127130 | Flow control: Manual types | 2008 | 14 | | (D) | | (D) |
| | | 2007 | | | (D) | | (D) |
| 3329127140 | Flow control: Other types | 2008 | 17 | c/ | 1,377,145 | c/ | 58,575 |
| | | 2007 | | | 1,337,089 | | 50,218 |
| 3329127155 | Cartridge valves (except directional control) | 2008 | 15 | a/ | 13,361,919 | a/ | 313,725 |
| | | 2007 | | a/ | 13,574,708 | a/ | 269,282 |
| 3329127160 | Electrohydraulic valves: Pilot-operated, torque motor servovalves | 2008 | 4 | | (D) | | (D) |
| | | 2007 | | | (D) | | (D) |
| 3329127170 | Electrohydraulic valves: Other types, including proportional | 2008 | 9 | | (D) | | (D) |
| | | 2007 | | | (D) | | (D) |
| 3329127180 | Other nonaerospace-type hydraulic valves, including stack and logic | 2008 | 18 | | 2,115,580 | | 262,585 |
| | | 2007 | | r/ | 2,405,351 | r/ | 253,284 |
| 3329129 | Nonaerospace type pneumatic directional control valves | 2008 | (X) | c/ | 19,655,468 | c/ | 533,413 |
| | | 2007 | | b/ | 20,105,663 | b/ | 532,967 |
| 3329129110 | Manual | 2008 | 25 | | (S) | c/ | 73,340 |
| | | 2007 | | | (S) | c/ | 72,515 |
| 3329129120 | Solenoid: Under 1/8 inch port diameter | 2008 | 10 | a/ | 8,978,898 | c/ | 107,149 |
| | | 2007 | | a/ | 8,943,355 | c/ | 114,566 |
| 3329129130 | Solenoid: 1/8 inch up to and including 1/4 inch port diameter: 3-way types | 2008 | 15 | c/ | 1,319,714 | b/ | 51,193 |
| | | 2007 | | | 1,312,240 | | 49,517 |
| 3329129140 | Solenoid: 1/8 inch up to and including 1/4 inch port diameter: 4-way types | 2008 | 17 | c/ | 2,008,820 | c/ | 95,962 |
| | | 2007 | | b/r/ | 2,205,757 | b/ | 97,718 |

| | | | | | | | |
|------------|--|------|-----|------|-----------|------|---------|
| 3329129150 | Solenoid: Over 1/4 inch port diameter: 3-way types | 2008 | 14 | a/r/ | 461,407 | a/ | 47,639 |
| | | 2007 | | r/ | 508,542 | a/ | 46,475 |
| 3329129160 | Solenoid: Over 1/4 inch port diameter: 4-way types | 2008 | 14 | c/ | 1,104,676 | c/ | 80,568 |
| | | 2007 | | c/ | 1,107,368 | c/ | 79,703 |
| 3329129170 | All other solenoid types | 2008 | 6 | | (S) | c/ | 31,690 |
| | | 2007 | | | 225,455 | | 30,301 |
| 3329129180 | Mechanical, remote pilot, and all other types | 2008 | 20 | | (S) | | (S) |
| | | 2007 | | c/ | 1,556,476 | c/ | 42,172 |
| 332912B | Nonaerospace type pneumatic valves (except directional control) | 2008 | (X) | a/ | 7,694,975 | a/ | 155,774 |
| | | 2007 | | | 8,552,032 | a/r/ | 160,891 |
| 332912B110 | Filter-regulator combination units, integral types | 2008 | 8 | | 572,887 | | 16,793 |
| | | 2007 | | | 640,235 | | 18,248 |
| 332912B120 | Other FRs and filter-regulator-lubricator combo units | 2008 | 11 | | (D) | | (D) |
| | | 2007 | | | (D) | | (D) |
| 332912B130 | Regulators, sold separately | 2008 | 9 | a/ | 513,958 | a/ | 14,931 |
| | | 2007 | | | 576,207 | | 15,967 |
| 332912B140 | Flow control valves | 2008 | 19 | | 3,573,524 | a/ | 42,899 |
| | | 2007 | | | 3,960,249 | a/r/ | 43,848 |
| 332912B150 | Check, shuttle, exhaust, needle, and all other types | 2008 | 24 | a/ | 2,900,994 | b/ | 72,348 |
| | | 2007 | | a/ | 3,244,691 | b/ | 73,553 |
| 332912C000 | Nonaerospace-type pneumatic valves for non-motion control applications | 2008 | 2 | | (D) | | (D) |
| | | 2007 | | | (D) | | (D) |
| 332912I | Aerospace type hydraulic fluid power valves | 2008 | (X) | | (S) | | (S) |
| | | 2007 | | | (S) | c/r/ | 453,061 |

| | | | | | | |
|------------|---|------|-----|------|----------|---------|
| 3329121110 | 2-, 3-, and 4-way directional control valves: Manually or mechanically operated | 2008 | 15 | | (D) | (D) |
| | | 2007 | | | (D) | (D) |
| 3329121120 | 2-, 3-, and 4-way directional control valves: Solenoid operated | 2008 | 18 | | (D) | (D) |
| | | 2007 | | | (D) | (D) |
| 3329121130 | 2-, 3-, and 4-way directional control valves: Motor operated | 2008 | 5 | | (D) | (D) |
| | | 2007 | | | (D) | (D) |
| 3329121140 | 2-, 3-, and 4-way directional control valves: Electrohydraulic servovalves | 2008 | 9 | | (D) | (D) |
| | | 2007 | | | (D) | (D) |
| 3329121150 | 2-, 3-, and 4-way directional control valves: Flow, pressure, and other types of hydraulic valves | 2008 | 19 | b/ | 272,583 | c/ |
| | | 2007 | | a/r/ | 218,908 | c/r/ |
| 3329123 | Aerospace type pneumatic fluid power valves | 2008 | (X) | c/ | 578,577 | b/ |
| | | 2007 | | | 499,859 | a/r/ |
| 3329123110 | Pneumatic valves (all types) | 2008 | 21 | c/ | 578,577 | b/ |
| | | 2007 | | b/ | 499,859 | a/r/ |
| 332912D | Parts for fluid power valves | 2008 | (X) | | (X) | (S) |
| | | 2007 | | | (X) a/r/ | 255,127 |
| 332912D110 | Parts for nonaerospace type hydraulic and pneumatic valves, sold separately | 2008 | 32 | | (X) c/ | 120,482 |
| | | 2007 | | | (X) a/ | 146,191 |
| 332912D120 | Parts for aerospace type hydraulic and pneumatic valves, sold separately | 2008 | 12 | | (X) | (S) |
| | | 2007 | | | (X) a/r/ | 108,936 |
| 332912H | Nonaerospace type flared (metal) fittings and couplings for, and assemblies of tubing used in, fluid power transfer systems | 2008 | (X) | | (X) a/ | 512,814 |
| | | 2007 | | | (X) a/r/ | 514,776 |

| | | | | | |
|------------|---|------|-----|--------|---------|
| 332912H110 | Flared fittings: Brass and bronze (SAE 45 degrees and 37 degrees) | 2008 | 5 | (X) | 74,683 |
| | | 2007 | | (X) | 70,745 |
| 332912H120 | Flared fittings: Carbon steel (JIC 37 degrees) | 2008 | 5 | (X) | 118,420 |
| | | 2007 | | (X) r/ | 116,734 |
| 332912H130 | Flared fittings: Other, including alloy steel | 2008 | 8 | (X) | (S) |
| | | 2007 | | (X) | (S) |
| 332912H140 | Flared fittings: Assemblies of tubing | 2008 | 8 | (X) | (D) |
| | | 2007 | | (X) | (D) |
| 332912H150 | Flared fittings: Assemblies of tubing and hose | 2008 | 8 | (X) | (D) |
| | | 2007 | | (X) | (D) |
| 332912J | Nonaerospace type flareless fittings and couplings, including nonmetal fittings, used in fluid power transfer systems | 2008 | (X) | (X) | 552,708 |
| | | 2007 | | (X) | 549,383 |
| 332912J110 | Metal types: Brass and bronze | 2008 | 11 | (X) | 101,079 |
| | | 2007 | | (X) | 99,675 |
| 332912J120 | Metal types: Carbon steel | 2008 | 5 | (X) | (D) |
| | | 2007 | | (X) | (D) |
| 332912J130 | Metal types: Stainless steel | 2008 | 9 | (X) | (D) |
| | | 2007 | | (X) | (D) |
| 332912J140 | Metal types: Other, including alloy steel | 2008 | 6 | (X) | (D) |
| | | 2007 | | (X) | (D) |
| 332912J150 | Metal types: Nonmetal fittings, including plastic | 2008 | 6 | (X) | (D) |
| | | 2007 | | (X) | (D) |
| 332912L | Nonaerospace type hydraulic and pneumatic | 2008 | (X) | (X) | 896,550 |

| | | | | | |
|------------|--|----------|----------|--------|---------|
| | fittings and couplings for hose, and manifolds | 2007 | | (X) r/ | 826,954 |
| 332912L110 | Permanent hose end fittings (crimped and swaged) | 2008 15 | (X) | | 310,280 |
| | | 2007 | (X) r/ | | 270,522 |
| 332912L120 | Hydraulic and pneumatic reusable end fittings. | 2008 14 | (X) | | 71,842 |
| | | 2007 | (X) c/ | | 80,117 |
| 332912L130 | Hydraulic quick connect and disconnect couplings | 2008 16 | (X) | | 167,905 |
| | | 2007 | (X) | | 160,608 |
| 332912L140 | Pneumatic quick connect and disconnect couplings | 2008 16 | (X) | | 121,729 |
| | | 2007 | (X) | | 118,736 |
| 332912L150 | Manifolds and manifold assemblies for fluid power systems | 2008 15 | (X) a/ | | 122,245 |
| | | 2007 | (X) a/r/ | | 101,230 |
| 332912L160 | All other, including steel adaptor, swivel, rotating, and extension fittings | 2008 15 | (X) a/ | | 102,549 |
| | | 2007 | (X) | | 95,741 |
| 332912N | Nonaerospace type hydraulic and pneumatic assemblies of hose | 2008 (X) | (X) | | 371,876 |
| | | 2007 | (X) | | 394,878 |
| 332912N110 | Nonaerospace type hydraulic and pneumatic assemblies with permanent end fittings | 2008 20 | (X) | | 285,567 |
| | | 2007 | (X) | | 308,635 |
| 332912N120 | Nonaerospace type hydraulic and pneumatic assemblies with reusable end fittings | 2008 8 | (X) | | (D) |
| | | 2007 | (X) | | (D) |
| 332912N130 | Nonaerospace-type hydraulic and pneumatic bulk hose | 2008 3 | (X) | | (D) |
| | | 2007 | (X) | | (D) |
| 332912F | Aerospace-type hydraulic and pneumatic hose or tube end fittings and assemblies and mani-folds | 2008 (X) | (X) a/ | | 852,223 |
| | | 2007 | (X) a/r/ | | 857,601 |

| | | | | | | |
|------------|--|------|-----|----|---------------|---------|
| 332912F110 | Assemblies of hose and/or tubing | 2008 | 7 | | (X) | (D) |
| | | 2007 | | | (X) | (D) |
| 332912F125 | Hose and/or tube fittings, all types | 2008 | 12 | | (X) b/ | 598,671 |
| | | 2007 | | | (X) a/r/ | 607,247 |
| 332912F130 | Manifolds for aerospace hydraulic systems | 2008 | 4 | | (X) | (D) |
| | | 2007 | | | (X) | (D) |
| 3339993 | Nonaerospace type filters for hydraulic fluid power systems | 2008 | (X) | | (X) c/ | 469,316 |
| | | 2007 | | | (X) a/ | 441,584 |
| 3339993110 | Hydraulic fluid filter assemblies, with or without filter element installed: Low pressure (below 301 psi) | 2008 | 19 | a/ | 685,920 b/ | 31,735 |
| | | 2007 | | r/ | 986,091 r/ | 30,450 |
| 3339993120 | Hydraulic fluid filter assemblies, with or without filter element installed: Medium pressure (301 to 2,999 psi) | 2008 | 11 | c/ | 1,221,764 | (S) |
| | | 2007 | | r/ | 1,314,313 r/ | 41,726 |
| 3339993130 | Hydraulic fluid filter assemblies, with or without filter element installed: High pressure (3,000 psi and above) | 2008 | 12 | c/ | 96,658 | (S) |
| | | 2007 | | r/ | 97,295 r/ | 24,117 |
| 3339993140 | Filter replacement elements: Reusable (cleanable) type | 2008 | 9 | | 732,315 a/ | 11,806 |
| | | 2007 | | | 649,143 a/ | 10,704 |
| 3339993150 | Filter replacement elements: Nonreusable type | 2008 | 17 | | (S) | (S) |
| | | 2007 | | a/ | 17,240,660 b/ | 277,480 |
| 3339993160 | Filter replacement elements: Strainers and separators, filter parts, and accessories | 2008 | 16 | | (X) c/ | 56,102 |
| | | 2007 | | | (X) r/ | 57,107 |
| 3339994 | Nonaerospace type filters for pneumatic fluid power systems | 2008 | (X) | | (X) | (S) |
| | | 2007 | | | (X) | 112,067 |
| 3339994110 | Air supply filter assemblies and filter replacement elements, excluding those shipped as part of a FR or FRL combo unit: | 2008 | 11 | | (X) | (S) |
| | | 2007 | | | (X) | 72,150 |

| | | | | | | | |
|-------------|---|------|-----|-----|-----------|---------|-----------|
| | Coalescing types, including elements sold separately | | | | | | |
| 3339994120 | Air supply filter assemblies and filter replace-ment elements, excluding those shipped as part of a FR or FRL combo unit: | 2008 | 9 | (X) | | (D) | |
| | Other types, including elements sold separately | 2007 | | (X) | c/ | 12,139 | |
| 3339994130 | Air supply filter assemblies and filter replace-ment elements, excluding those shipped as part of a FR or FRL combo unit: | 2008 | 10 | (X) | | (D) | |
| | Air exhaust mufflers, diffusers, filter parts, and air preparation accessories | 2007 | | (X) | | 27,778 | |
| 3339996 | Aerospace type hydraulic and pneumatic filters | 2008 | (X) | (X) | a/ | 118,009 | |
| | | 2007 | | (X) | | 99,956 | |
| 3339996110 | Hydraulic | 2008 | 6 | (X) | | (D) | |
| | | 2007 | | (X) | | 78,977 | |
| 3339996120 | Pneumatic | 2008 | 3 | (X) | | (D) | |
| | | 2007 | | (X) | | 20,979 | |
| 3339998 pt. | Compressed air and gas dryers, and lubricators | 2008 | (X) | b/ | 68,499 | (S) | |
| | | 2007 | | | 74,563 b/ | 55,130 | |
| 3339998A00 | Compressed air and gas dryers | 2008 | 4 | (D) | | (D) | |
| | | 2007 | | (D) | | (D) | |
| 3339998880 | Lubricators for pneumatic systems, sold separately | 2008 | 4 | (D) | | (D) | |
| | | 2007 | | (D) | | (D) | |
| 3339951 | Nonaerospace type hydraulic fluid power cylinders and actuators, linear and rotary | 2008 | (X) | c/ | 4,595,087 | c/ | 1,635,569 |
| | | 2007 | | b/ | 4,477,253 | a/ | 1,522,284 |
| 3339951110 | Tie-rod types: Standard NFPA and JIC - Less than 1,500 psi | 2008 | 16 | a/ | 169,096 | | 80,648 |
| | | 2007 | | | 174,700 | | 76,045 |

| | | | | | | | |
|------------|---|------|-----|----|-----------|----|---------|
| 3339951120 | Tie-rod types: Standard NFPA and JIC - 1,500 to 3,000 psi | 2008 | 16 | b/ | 185,342 | b/ | 114,777 |
| | | 2007 | | a/ | 168,379 | a/ | 110,844 |
| 3339951130 | Tie-rod types: Standard NFPA and JIC - Greater than 3,000 psi | 2008 | 5 | | (S) | | (S) |
| | | 2007 | | | (S) c/r/ | | 2,821 |
| 3339951140 | Tie-rod types: Standard NFPA and JIC - Other tie-rod types | 2008 | 13 | | (D) | | (D) |
| | | 2007 | | | 184,625 | | 26,519 |
| 3339951150 | Tie-rod types: Standard NFPA and JIC - Threaded/weld fused combination | 2008 | 42 | c/ | 3,194,938 | b/ | 879,807 |
| | | 2007 | | b/ | 3,189,932 | a/ | 833,216 |
| 3339951160 | Tie-rod types: Standard NFPA and JIC - Telescoping | 2008 | 21 | a/ | 105,427 | c/ | 164,714 |
| | | 2007 | | | 118,872 | | 166,502 |
| 3339951170 | Tie-rod types: Standard NFPA and JIC - Mill type | 2008 | 12 | | (D) | | (D) |
| | | 2007 | | | (D) | | (D) |
| 3339951180 | Tie-rod types: Standard NFPA and JIC - Other, including those threaded at both ends | 2008 | 14 | c/ | 462,409 | | (S) |
| | | 2007 | | | 422,996 | | 147,404 |
| 3339951190 | Tie-rod types: Standard NFPA and JIC - Electrohydraulic types | 2008 | 9 | | (D) | | (D) |
| | | 2007 | | | (D) | | (D) |
| 33399511A0 | Tie-rod types: Standard NFPA and JIC - Hydraulic rotary actuators | 2008 | 10 | | 95,668 | | 122,106 |
| | | 2007 | | | 91,541 | | 101,582 |
| 3339953 | Nonaerospace type pneumatic fluid power cylinders and actuators, linear and rotary | 2008 | (X) | | 5,142,253 | | 423,306 |
| | | 2007 | | | 5,862,649 | | 437,984 |
| 3339953110 | NFPA interchangeable cylinders: Steel | 2008 | 15 | a/ | 330,181 | b/ | 89,177 |
| | | 2007 | | | 353,324 | | 74,185 |
| 3339953120 | NFPA interchangeable cylinders: Aluminum: Less than 1-1/2 inch bore size | 2008 | 8 | b/ | 78,634 | a/ | 2,872 |
| | | 2007 | | c/ | 54,333 | b/ | 1,877 |

| | | | | | | |
|------------|---|------|-----|----|-----------|------------|
| 3339953130 | NFPA interchangeable cylinders: Aluminum: 1-1/2 inch bore size and over | 2008 | 17 | | 250,447 | 39,629 |
| | | 2007 | | | 369,870 | 46,833 |
| 3339953140 | NFPA interchangeable cylinders: Aluminum: Rodless cylinders | 2008 | 10 | | 106,804 | 35,064 |
| | | 2007 | | | 131,726 | 37,935 |
| 3339953150 | NFPA interchangeable cylinders: Other pneumatic cylinders: Less than 1-1/2 inch bore size | 2008 | 23 | a/ | 3,116,046 | 133,868 |
| | | 2007 | | a/ | 3,692,291 | 154,895 |
| 3339953160 | NFPA interchangeable cylinders: Other pneumatic cylinders: 1-1/2 inch bore size and over | 2008 | 31 | | 1,118,674 | 100,207 |
| | | 2007 | | | 1,111,753 | 98,147 |
| 3339953170 | NFPA interchangeable cylinders: Other pneumatic cylinders: Pneumatic rotary actuators | 2008 | 14 | | 141,467 | 22,489 |
| | | 2007 | | r/ | 149,352 | 24,112 |
| 3339955 | Parts for nonaerospace type hydraulic and pneumatic fluid power cylinders, actuators, and related items, n.e.c. | 2008 | (X) | | (X) | 700,366 |
| | | 2007 | | | (X) | 584,867 |
| 3339955110 | Accumulators (bladder, piston, and other types) | 2008 | 12 | | 290,712 | 118,204 |
| | | 2007 | | r/ | 266,723 | r/ 107,900 |
| 3339955120 | Shock absorbers, not for vehicle suspension, and cushions (hydraulic and pneumatic) | 2008 | 11 | | (D) | (D) |
| | | 2007 | | | (D) | (D) |
| 3339955130 | Reservoirs, intensifiers, and other devices for fluid energy absorption and/or storage | 2008 | 11 | | (D) | (D) |
| | | 2007 | | | (D) | (D) |
| 3339955140 | Parts for nonaerospace type hydraulic and pneumatic cylinders, actuators, accumulators, cushions, and nonvehicular shock absorbers, sold separately | 2008 | 45 | | (X) | 422,288 |
| | | 2007 | | | (X) | 372,955 |
| 3339957 | Aerospace type fluid power cylinders and actuators, hydraulic and pneumatic | 2008 | (X) | | (X) | 1,495,196 |
| | | 2007 | | | (X) | 1,427,862 |

| | | | | | | | |
|------------|--|------|----|------|---------|------|---------|
| 3339957110 | Hydraulic servo-actuator assemblies (linear and rotary): Mechanical input | 2008 | 7 | a/ | 121,116 | | 670,773 |
| | | 2007 | | a/r/ | 138,684 | r/ | 634,417 |
| 3339957120 | Hydraulic servo-actuator assemblies (linear and rotary): Electrical input | 2008 | 4 | c/ | 29,031 | | 352,234 |
| | | 2007 | | a/ | 24,326 | r/ | 292,554 |
| 3339957130 | Hydraulic servo-actuator assemblies (linear and rotary): Combination input | 2008 | 3 | | (D) | | (D) |
| | | 2007 | | | (D) | | (D) |
| 3339957140 | Hydraulic utility actuators: Linear actuators (cylinders) | 2008 | 10 | | 132,674 | a/ | 94,443 |
| | | 2007 | | a/r/ | 68,619 | c/r/ | 100,541 |
| 3339957150 | Hydraulic utility actuators: Rotary actuators (limited rotation) | 2008 | 1 | | (D) | | (D) |
| | | 2007 | | | (D) | | (D) |
| 3339957160 | Hydraulic utility actuators: Shock absorbers, snubbers, and cushions, all types, excluding oleo strut assemblies | 2008 | 4 | | (D) | | (D) |
| | | 2007 | | | (D) | | (D) |
| 3339957170 | Hydraulic utility actuators: Pneumatic actuators (linear and rotary) | 2008 | 7 | b/ | 57,592 | a/ | 65,132 |
| | | 2007 | | b/ | 66,915 | a/ | 59,279 |
| 3339957180 | Hydraulic utility actuators: Accumulators (bladder, piston, and other types) | 2008 | 8 | | (S) | | (S) |
| | | 2007 | | | (S) | r/ | 39,160 |
| 3339957190 | Hydraulic utility actuators: Reservoirs, intensifiers, and other devices for fluid energy absorption and/or storage | 2008 | 5 | | (D) | | (D) |
| | | 2007 | | | (D) | | (D) |
| 33399571A0 | Hydraulic utility actuators: Other aerospace type fluid power cylinders, rotary actuators, cushions, and related items, n.e.c. | 2008 | 3 | | (X) | | (D) |
| | | 2007 | | | (X) | | (D) |
| 3339955150 | Hydraulic utility actuators: Parts for aerospace type hydraulic and pneumatic cylinders, actuators, accumulators, cushions, and related items, sold separately | 2008 | 9 | | (X) | | 54,969 |
| | | 2007 | | | (X) | a/ | 67,286 |

| | | | | | | | |
|------------|--|------|-----|------|-----------|------|---------|
| 3339961 | Nonaerospace type reciprocating pumps | 2008 | (X) | | 2,319,509 | a/ | 946,485 |
| | | 2007 | | a/r/ | 2,546,835 | a/ | 899,968 |
| 3339961110 | Axial piston: Variable displacement types - Closed loop | 2008 | 10 | | 1,781,037 | a/ | 568,606 |
| | | 2007 | | a/ | 2,083,186 | a/ | 566,108 |
| 3339961120 | Axial piston: Variable displacement types - Open loop | 2008 | 10 | b/ | 516,261 | a/ | 366,789 |
| | | 2007 | | a/ | 442,833 | a/ | 318,235 |
| 3339961130 | Axial piston: Variable displacement types - Fixed displacement types | 2008 | 5 | | (D) | | (D) |
| | | 2007 | | | (D) | | (D) |
| 3339961140 | Axial piston: Variable displacement types - Radial piston types | 2008 | 3 | | (D) | | (D) |
| | | 2007 | | | (D) | | (D) |
| 3339963 | Nonaerospace type rotary and other fluid power pumps | 2008 | (X) | a/ | 3,722,195 | a/ | 594,435 |
| | | 2007 | | r/ | 4,099,341 | b/r/ | 544,660 |
| 3339963110 | Gear type: Internal gear type, including gerotors | 2008 | 12 | | (D) | | (D) |
| | | 2007 | | | (D) | | (D) |
| 3339963120 | Gear type: External gear type | 2008 | 11 | b/ | 1,419,474 | b/ | 344,298 |
| | | 2007 | | a/ | 1,408,346 | b/ | 288,967 |
| 3339963150 | Vane type: Fixed and variable displacement | 2008 | 6 | | (D) | | (D) |
| | | 2007 | | | (D) | | (D) |
| 3339965 | Nonaerospace type fluid power motors | 2008 | (X) | | (X) | | 698,047 |
| | | 2007 | | | (X) | r/ | 677,708 |
| 3339965110 | Pneumatic (air) motors | 2008 | 3 | | (D) | | (D) |
| | | 2007 | | | (D) | | (D) |
| 3339965120 | Hydraulic motors: Gear type - Internal types, excluding gerotors | 2008 | 8 | | (D) | | (D) |
| | | 2007 | | | (D) | | (D) |

| | | | | | | | |
|------------|--|------|-----|------|-----------|------|---------|
| 3339965130 | Hydraulic motors: Gerotor types | 2008 | 6 | c/ | 2,506,800 | | 328,669 |
| | | 2007 | | c/r/ | 2,399,374 | r/ | 304,255 |
| 3339965140 | Hydraulic motors: External | 2008 | 6 | | 138,416 | a/ | 18,974 |
| | | 2007 | | a/ | 136,500 | b/ | 18,110 |
| 3339965150 | Hydraulic motors: Vane types, fixed and variable | 2008 | 6 | c/ | 13,111 | b/ | 11,122 |
| | | 2007 | | r/ | 17,762 | r/ | 19,969 |
| 3339965160 | Hydraulic motors: Radial piston types, fixed and variable | 2008 | 4 | | (D) | | (D) |
| | | 2007 | | | (D) | | (D) |
| 3339965170 | Axial piston types: Fixed displacement | 2008 | 7 | a/ | 115,474 | c/ | 66,902 |
| | | 2007 | | | 93,874 | | 46,870 |
| 3339965180 | Axial piston types: Variable displacement | 2008 | 5 | c/ | 213,632 | | 86,909 |
| | | 2007 | | | 212,321 | | 70,798 |
| 3339965190 | Axial piston types: Prime movers shipped with pumps or sold separately | 2008 | 3 | | (X) | | (D) |
| | | 2007 | | | (X) | | (D) |
| 3339967 | Aerospace type fluid power pumps and motors | 2008 | (X) | | (S) | | (S) |
| | | 2007 | | r/ | 132,721 | c/r/ | 384,510 |
| 3339967110 | Hydraulic pumps: Fixed and variable displacement types | 2008 | 7 | | (S) | | (S) |
| | | 2007 | | r/ | 55,985 | c/r/ | 214,584 |
| 3339967120 | Hydraulic pumps: Pump/electric motor assemblies, fixed and variable displacement types | 2008 | 8 | | (D) | | (D) |
| | | 2007 | | | (D) | | (D) |
| 3339967130 | Hydraulic pumps: Other pump packages, n.e.c. | 2008 | 5 | | (D) | | (D) |
| | | 2007 | | | (D) | | (D) |
| 3339967170 | Motors: Aerospace-type fluid power motors, all kinds | 2008 | 5 | | (D) | | (D) |

| | | | | | |
|------------|--|--------------|-----|--------------------|--------------------|
| | | 2007 | | (D) | (D) |
| 3339969 | Parts for fluid power pumps, motors, and hydrostatic transmissions | 2008 2007 | (X) | (X) c/ (X) c/r/ | 270,789 288,341 |
| 3339969110 | Hydraulic: Nonaerospace | 2008 2007 | 24 | (X) (X) | (D) (D) |
| 3339969120 | Hydraulic: Aerospace | 2008 2007 | 4 | (X) (X) | (D) (D) |
| 3339969130 | Pneumatic: Nonaerospace | 2008 2007 | 2 | (X) (X) | (D) (D) |
| 3339969140 | Pneumatic: Aerospace | 2008 2007 | 1 | (X) (X) | (D) (D) |
| 333996A000 | Nonaerospace hydrostatic transmissions | 2008 2007 | 3 | (D) (D) | (D) (D) |
| 333996B000 | Nonaerospace hydraulic power units | 2008 2007 | 6 | (D) (D) | (D) (D) |

Table 3. Shipments, Exports, and Imports of Fluid Power Products: 2008 and 2007
[Quantity in units. Value in thousands of dollars]

| Product code 1/ | Product description | Year | | Manufacturers' shipments quantity | | Manufacturers' shipments (value f.o.b plant) | Export shipments 2/ (quantity) | Export shipments 2/ (value at port) | Imports for consumption 3/ (quantity) | Imports for consumption 3/ (value at port) |
|-----------------|--|------|----|-----------------------------------|------|--|--------------------------------|-------------------------------------|---------------------------------------|--|
| 332912100T | Hydraulic fluid power valves | 2008 | b/ | 33,043,296 | b/ | 1,950,086 | 3,971,454 | 538,456 | 50,739,532 | 570,386 |
| | | 2007 | a/ | 33,156,320 | a/ | 1,851,054 | 4,741,433 | 513,637 | 58,143,009 | 525,874 |
| 332912300T | Pneumatic fluid power valves | 2008 | b/ | 27,929,020 | b/ | 1,355,121 | 3,629,715 | 277,247 | 23,093,241 | 343,849 |
| | | 2007 | b/ | 29,157,554 | b/ | 1,123,560 | 2,978,816 | 231,775 | 38,588,629 | 367,535 |
| 332912D00T | Parts for fluid power valves: hydraulic, pneumatic, all types | 2008 | | (X) | | (S) | 7,036,625 | 172,507 | 23,466,944 | 307,157 |
| | | 2007 | | (X) | a/r/ | 255,127 | 7,381,279 | 170,246 | 27,263,619 | 357,149 |
| 333995100T | Hydraulic cylinders and hydraulic actuators (except electrohydraulic types) | 2008 | | (D) | | (D) | 393,603 | 240,231 | 7,621,140 | 731,188 |
| | | 2007 | | (D) | | (D) | 350,653 | 205,979 | 7,665,639 | 641,045 |
| 333995300T | Pneumatic cylinders (tie-rod types) | 2008 | | 659,262 | a/ | 131,678 | 2,592 | 5,747 | 114,199 | 17,207 |
| | | 2007 | | 777,527 | | 122,895 | 2,671 | 6,875 | 107,402 | 15,641 |
| 333995301T | Pneumatic cylinders (except tie-rod types) | 2008 | | 4,540,583 | | 356,760 | 600,890 | 61,904 | 2,285,729 | 86,722 |
| | | 2007 | | 5,152,037 | | 374,368 | 477,600 | 54,184 | 2,787,409 | 90,611 |
| 333995500T | Fluid power accumulators, hydraulic and pneumatic, and other hydraulic, pneumatic or combination devices for fluid energy absorption and/or storage, all types | 2008 | | (X) | | (D) | 221,922 | 260,993 | 588,353 | 222,257 |
| | | 2007 | | (X) | | (D) | 216,047 | 222,705 | 789,481 | 190,867 |
| 333996500T | Hydraulic motors, all types | 2008 | | (D) | | (D) | 312,131 | 132,600 | 688,841 | 449,149 |
| | | 2007 | | (D) | | (D) | 284,983 | 131,863 | 485,295 | 350,649 |
| 333996100T | Hydraulic pumps, all types | 2008 | | (D) | | (D) | 3,347,048 | 749,004 | 7,465,376 | 819,639 |
| | | 2007 | | (D) | | (D) | 4,226,531 | 698,216 | 6,792,804 | 740,617 |
| 333996900T | Parts for fluid power pumps and motors | 2008 | | (X) | c/ | 270,789 | (X) | 505,517 | (X) | 870,850 |
| | | 2007 | | (X) | c/r/ | 288,341 | (X) | 442,190 | (X) | 731,281 |

Footnotes:

1/ For comparison of the North American Industry Classification System codes with Schedule B export codes and HTSUSA import codes, see Table 4

2/ Source: Census Bureau report, EM 545, U.S. Exports.

3/ Source: Census Bureau report, IM 145, U.S. Imports for Consumption.

Table 4. Comparison of combined North American Industry Classification System (NAICS)-Based Product Codes with Schedule B Export Codes, and HTSUSA Import Codes: 2008

| Combined code | Product code | Product description | Export code 1/ | Import code 2/ |
|---------------|--------------|------------------------------|----------------|----------------|
| 332912100T | 3329125110 | Hydraulic fluid power valves | 8481.10.0020 | 8481.10.0020 |
| | 3329125120 | | 8481.20.0010 | 8481.20.0010 |
| | 3329125130 | | 8481.20.0020 | 8481.20.0020 |
| | 3329125140 | | 8481.20.0030 | 8481.20.0030 |
| | 3329125150 | | 8481.20.0040 | 8481.20.0040 |
| | 3329125160 | | 8481.20.0050 | 8481.20.0050 |
| | 3329127110 | | | |
| | 3329127120 | | | |
| | 3329127130 | | | |
| | 3329127140 | | | |
| | 3329127155 | | | |
| | 3329127160 | | | |
| | 3329127170 | | | |
| | 3329127180 | | | |
| | 3329121110 | | | |
| | 3329121120 | | | |
| | 3329121130 | | | |
| | 3329121140 | | | |
| | 3329121150 | | | |
| 332912300T | 3329129110 | Pneumatic fluid power valves | 8481.10.0040 | 8481.10.0040 |
| | 3329129120 | | 8481.10.0060 | 8481.10.0060 |
| | 3329129130 | | 8481.20.0060 | 8481.20.0060 |
| | 3329129140 | | 8481.20.0070 | 8481.20.0070 |
| | 3329129150 | | 8481.20.0080 | 8481.20.0080 |
| | 3329129160 | | | |
| | 3329129170 | | | |
| | 3329129180 | | | |
| | 332912B110 | | | |
| | 332912B120 | | | |
| | 332912B130 | | | |

| | | | | |
|------------|--|--|--|--|
| | 332912B140 332912B150 332912C000 3329123110 | | | |
| 332912D00T | 332912D110 332912D120 | Parts for fluid power valves: hydraulic, pneumatic, all types | 8481.90.9010 | 8481.90.9020 8481.90.9040 |
| 333995100T | 3339951110 3339951120 3339951130 3339951140 3339951150 3339951160 3339951170 3339951180 33399511A0 3339957110 3339957120 3339957130 3339957140 3339957150 | Hydraulic cylinders and hydraulic actuators (except electrohydraulic types) | 8412.21.0015 8412.21.0030 8412.21.0045 8412.21.0060 8412.21.0075 | 8412.21.0015 8412.21.0030 8412.21.0045 8412.21.0060 8412.21.0075 |
| 333995300T | 3339953110 3339953120 3339953130 | Pneumatic cylinders (tie-rod types) | 8412.31.0040 | 8412.31.0040 |
| 333995301T | 3339953140 3339953150 3339953160 3339953170 3339957170 | Pneumatic cylinders (except tie-rod types) | 8412.31.0080 | 8412.31.0080 |
| 333995500T | 3339955110 3339955130 3339957180 | Fluid power accumulators, hydraulic and pneumatic, and other hydraulic, pneumatic or combination devices for fluid energy absorption and/or storage, | 8412.29.8075 8412.39.0080 8479.89.9865 | 8412.29.8075 8412.39.0080 8479.89.9865 |

| | | | | |
|------------|------------|--|--------------|--------------|
| | 3339957190 | all types | | |
| | 33399571A0 | | | |
| | 3339957160 | | | |
| 333996500T | 3339965130 | Hydraulic motors, all types | 8412.29.8015 | 8412.29.8015 |
| | 3339965140 | | 8412.29.8030 | 8412.29.8030 |
| | 3339965150 | | 8412.29.8045 | 8412.29.8045 |
| | 3339965160 | | 8412.29.8060 | 8412.29.8060 |
| | 3339965170 | | | |
| | 3339965180 | | | |
| | 3339965110 | | | |
| 333996100T | 3339961110 | Hydraulic pumps, all types | 8413.50.0070 | 8413.50.0070 |
| | 3339961120 | | 8413.50.0080 | 8413.50.0080 |
| | 3339961130 | | 8413.60.0020 | 8413.60.0020 |
| | 3339961140 | | 8413.60.0030 | 8413.60.0030 |
| | 3339963110 | | 8413.60.0040 | 8413.60.0040 |
| | 3339963120 | | | |
| | 3339963150 | | | |
| | 3339967110 | | | |
| | 3339967120 | | | |
| | 3339967130 | | | |
| 333996900T | 3339969110 | Parts for fluid power pumps and motors | 8412.90.9005 | 8412.90.9005 |
| | 3339969120 | | 8412.90.9015 | 8412.90.9015 |
| | 3339969130 | | 8412.90.9025 | 8412.90.9025 |
| | 3339969140 | | 8412.90.9035 | 8412.90.9035 |
| | | | 8413.91.9050 | 8413.91.9050 |

Footnotes:

1/ Source: 2008 edition, Harmonized System-based Schedule B, Statistical Classification of Domestic and Foreign Commodities Exported from the United States.

2/ Source: Harmonized Tariff Schedule of the United States, Annotated (2008).

Symbols:

(D) - Withheld to avoid disclosing data of individual companies.

(X) - Not applicable.

(NA) - Not available.

r/ - Revised by 5 percent or more from previously published data.

(n.e.c.) - Not elsewhere classified.

(n.s.k.) - Not specified by kind.

(nehp) - Net engine horsepower

(btuh) - British thermal units per hour

(pt.) Part.

- Represents zero.

Estimation symbols - Percent of estimation for each item is indicated as follows:

a/ - 10 to 19 percent of this item has been estimated.

b/ - 20 to 29 percent of this item has been estimated.

c/ - 30 to 49 percent of this item has been estimated.

(S) - Withheld because estimates did not meet publication standards

Historical Note

The Census Bureau has collected data on fluid power products since 1981.

Historical Current Industrial Reports data may be obtained from a Federal Depository Library. To locate a Federal Depository Library in your area, please visit <http://www.gpoaccess.gov/libraries.html>.